Infinity®

HPS250

High-Current Powered Subwoofer

Technical Manual

INFINITY SYSTEMS INC.
250 Crossways Park Drive
Woodbury, New York 11797

H A Harman International Company

Part No.: 1112-HPS250 1/99

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CAUTIONS AND WARNINGS

BEFORE THIS AMPLIFIER IS PLUGGED IN, make sure its rated voltage corresponds to the voltage of the AC power source to be employed. Failure to use the correct voltage could cause damage to the amplifier when the AC power cable is plugged in. Do not exceed the rated voltage by more than 10%; operation below 90% will degrade performance or cause the unit to shut off.

WHEN SERVICING THIS AMPLIFIER:
1. Do not touch the metal frame of the woofer (if removed from the cabinet) when driving the amplifier at high power levels. In the unlikely event that the output devices in the amplifier fail and present an open circuit during their operation, AND the driver voice coil was to come in contact with the motor assembly, hazardous voltage could be present at the woofer frame.

2. When 120/230v-based test equipment is connected to the amplifier in any way, use of a 1000W isolation transformer (Stancor model GIS-1000 or similar) on the subwoofer is necessary for safety; in addition, an isolator plug, (a three-to-one pin adapter sometimes called a “cheater plug”) should be used on the power cord plug of the test equipment being used.

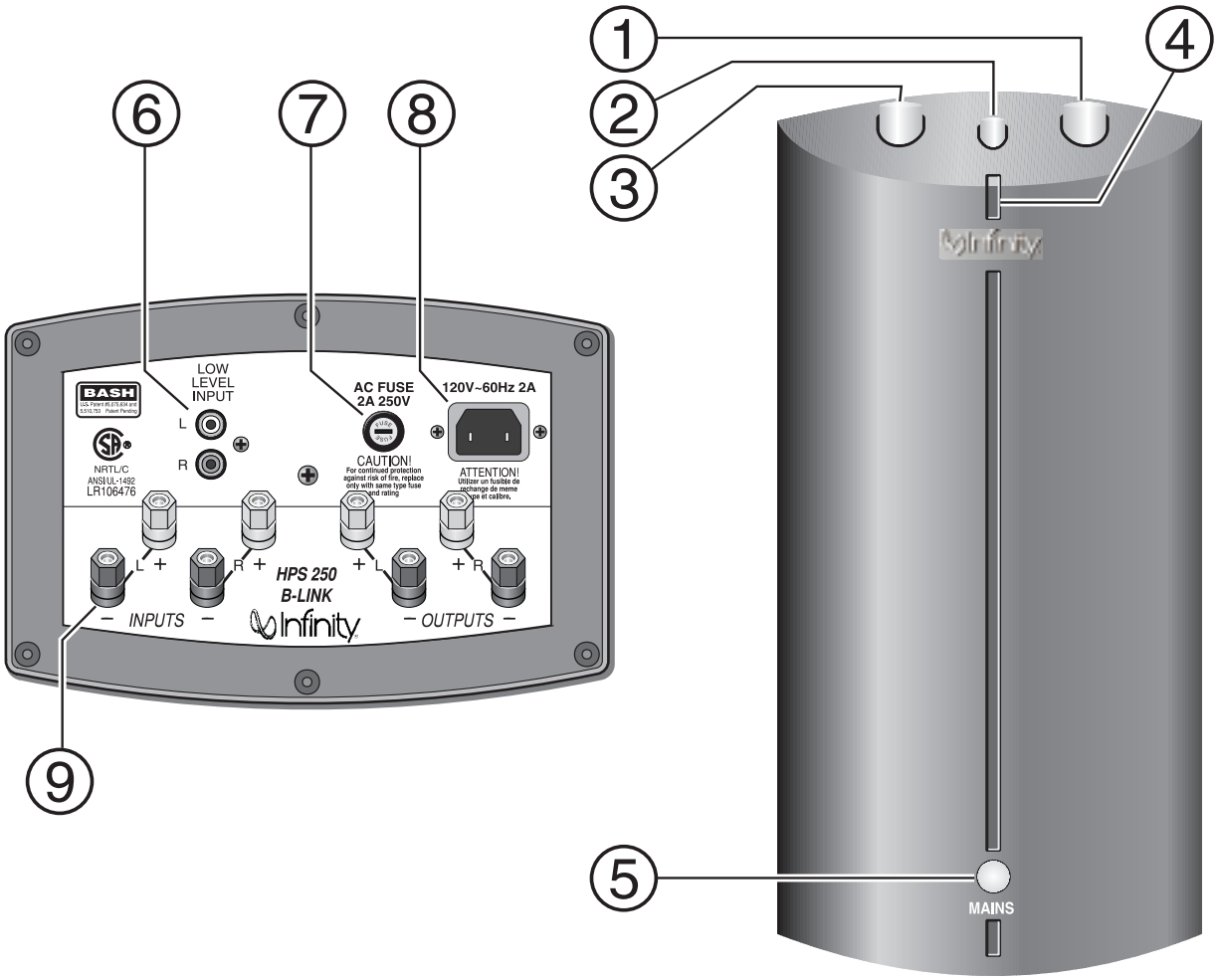
SPECIFICATIONS

Output Power	250 Watts (RMS)
Frequency Response	28 - 120 Hz
Crossover Frequency	50 - 150 Hz (Continuously Variable)
Phase	0 or 180 degrees
Driver	12" Woofer - (21 Ohm DCR)
Inputs	Line Level and Speaker Level
Outputs	Full Range Speaker
Dimensions	
Inches	18 x 15 x 18" (H x W x D)
Metric	457 x 381 x 457mm

* High-Level (speaker) outputs are active only if high-level input is used.

Occasional refinements may be made to existing products without notice, but will always meet or exceed original specifications unless otherwise stated.

CONTROLS AND THEIR FUNCTION



1. Gain - This knob controls the volume status of the subwoofer.

2. Phase - The phase switch is used to adjust the relative polarity of the subwoofer. When the phase switch is up, the phase is normal - when the switch is depressed, the subwoofer is 180 degrees out of phase.

3. Crossover Frequency - The crossover frequency knob determines the highest frequency your subwoofer will reproduce. It allows a seamless transition from the subwoofer to the satellite speakers.

4. LED - This LED turns green when the HPS250 is receiving power (is turned on) and is receiving a signal.

5. Main - This button is the master power switch.

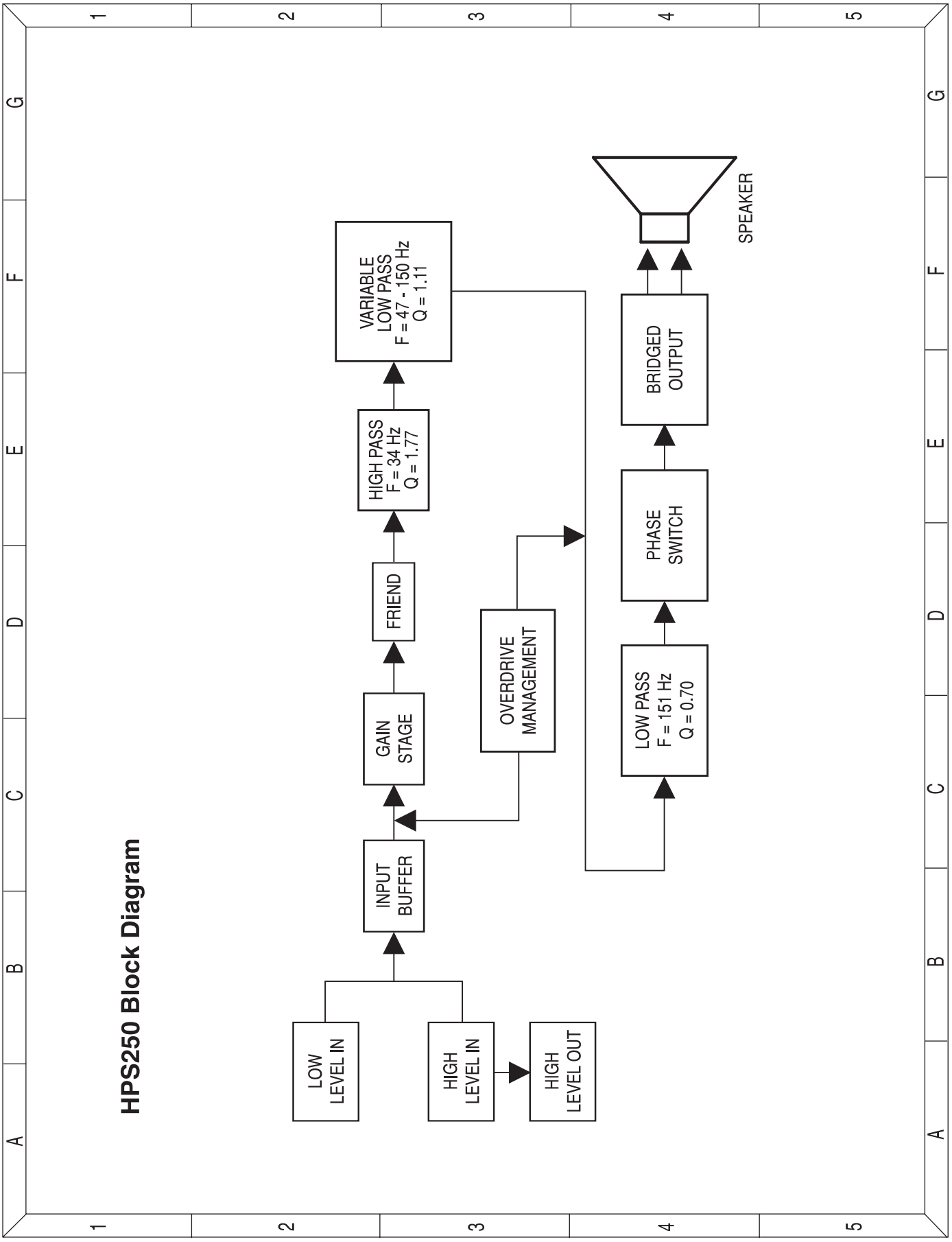
6. Low Level Input - These left and right Line Level Inputs are normally used when the receiver/ processor has line-level “pre-amp out ” or “subwoofer out” jacks. If a single cable mono or subwoofer source is connected to the HPS250, a Y-cable must be connected to the subwoofer for full output.

7. Fuse - Use only same type of fuses. Use a 2A 250v MDL Slo-Blo fuse for the 120v model, and a 1A 250v MDL Slo-Blo fuse for the 230v model.

8. AC Plug - Plug in the AC line cord in here.

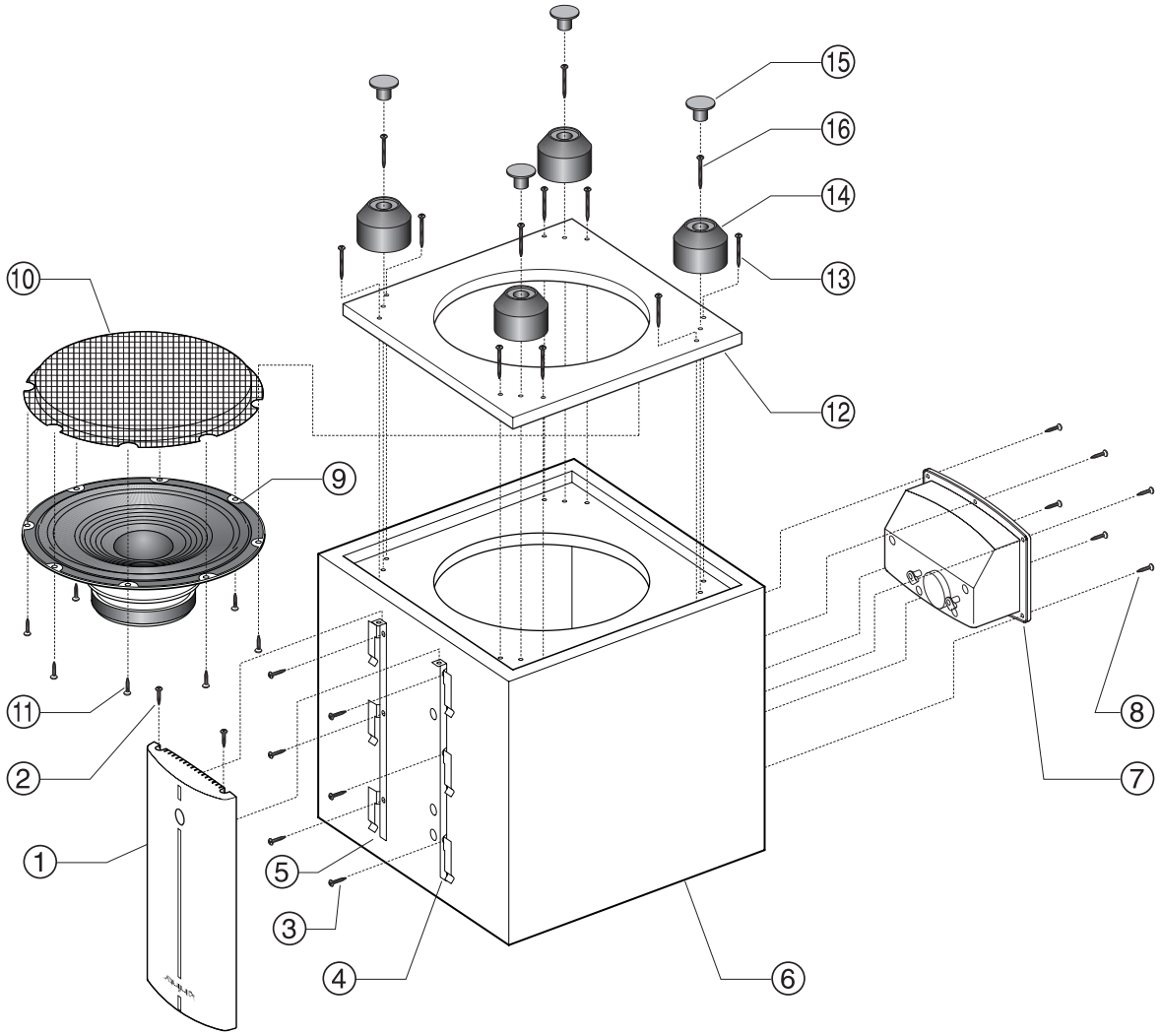
9. High Level Inputs - These High Level Inputs are for receivers that do not have line-level “pre-amp out” or “subwoofer out” jacks. When a pair of main or satellite speakers are attached to the OUTPUT terminals, they are driven the full range of frequencies as generated by the music source (receiver, amplifier, etc.)

HPS-250 BLOCK DIAGRAM



HPS-250 CABINET EXPLODED VIEW

Ref.#	Description	Part Number	Qty.
1	AMPLIFIER ASSEMBLY	333763-001	1
2	AMP. MOUNTING SCREWS, MS, BHXS, 8-32 x .5 BLACK	900701-008	2
3	BRACKET SCREWS, PB, PPH, #8 x .75"	900101-012	2
4	AMP. ASSY. BRACKET, LEFT	334189-001	1
5	AMP. ASSY. BRACKET, RIGHT	334189-002	1
6	CABINET	NOT FOR SALE	1
7	INPUT CUP ASSEMBLY	334193-003	1
8	INPUT CUP SCREWS, PB, PPH, #6 x .75"	903401-012	6
9	12" WOOFER	333644-001	1
10	GRILLE	334203-001	1
11	WOOFER SCREWS, PB, PPH, #8 x .75"	900101-012	8
12	CABINET BOTTOM	NOT FOR SALE	1
13	BOTTOM SCREWS, FLH BLACK #8 x 2"	61577	8
14	FEET	334186-001	4
15	FEET PADS (CAPS)	334192-001	4
16	FEET SCREWS, PB, PTH, #8 x 1"	903101-016	4



DISASSEMBLY PROCEDURES

Amplifier Removal

1. Lay the subwoofer on its side on a padded surface, amplifier facing upwards.
2. Locate and remove the (2) Allen head screws (#2) at the bottom of the plastic cover with a 3/32" wrench.
3. Slide the amplifier straight down until it clears the slotted brackets (#4) & (#5); pull away from the cabinet and expose for servicing without further disconnection.
4. To remove individual boards if desired, remove Philips screws and all relevant molex or other connectors.
5. Wires threading through the cabinet, glued in place, should be left intact under all circumstances.

Woofer Removal

1. DO NOT ATTEMPT TO PRY THE GRILLE (#10) OUT OF ITS RECESS.
2. Lay the subwoofer on its side on a padded surface.
3. Remove the (4) rubber foot plugs (#15).
4. Remove the (4) 1" foot screws (#16), remove all four feet.
5. Remove all (8) 2" expose bottom panel screws (#13).
6. Pull the bottom panel (#12) out of the cabinet - one way to accomplish this is to partially screw one of the 2" screws back into a threaded "foot" hole and pull on the screw. Lift the bottom panel & woofer (#9) out of the cabinet.
7. Unplug both woofer terminals; remove all (8) 3/4" screws (#11).

WHEN SERVICING THIS AMPLIFIER:

1. Do not touch the metal frame of the woofer (if removed from the cabinet) when driving the amplifier at high power levels. In the unlikely event that the output devices in the amplifier fail and present an open circuit during their operation, AND the driver voice coil was to come in contact with the motor assembly, hazardous voltage could be present at the woofer frame.

2. When 120/230v-based test equipment is connected to the amplifier in any way, use of a 1000W isolation transformer (Stancor model GIS-1000 or similar) on the subwoofer is necessary for safety; in addition, an isolator plug, (a three-to-one pin adapter sometimes called a "cheater plug") should be used on the power cord plug of the test equipment being used.

TEST PROCEDURE 1

Bias Test

1. Remove and expose amplifier assembly by following instructions above. All connectors must remain intact.
2. Locate and disconnect the CD+ connector on the main board; insert a DC Ammeter set to a low range between the connectors.
3. Locate and adjust R13 and R28 potentiometers on the main board near the connector to maximum CCW.
4. Connect power cord, turn on power switch; verify initial DC current is less than 1.5mA.
5. Adjust R28 CW slowly until meter reads 5 mA.
6. Now adjust R13 CW slowly until meter reads 10 mA.
7. Turn power OFF; disconnect Ammeter and re-connect CD+ terminal.

Audio Test

1. Remove the woofer by following instructions above; replace with a 20 ohm 100 watt resistive load.
2. Connect a voltmeter (Wavetek DM25XT or similar) and oscilloscope to the amplifier output terminals, plus the load.
3. Adjust the Gain control to minimum. Frequency should be set to maximum. (Pahse is irrelevant); there is no input signal for this test.
4. Turn on the unit; Observe voltage on oscilloscope and rotate controls; AC noise should be less than 8 mV.
5. Adjust the Gain control to minimum; Frequency should be set to maximum. (Phase is irrelevant) Connect a signal generator to the Left Low Level (RCA) input; only one cable is necessary; set the generator to 60Hz, 800mV.

TEST PROCEDURE 2

(Note: A high gain amplifier of at least a 100 watt rating is recommended for this test)

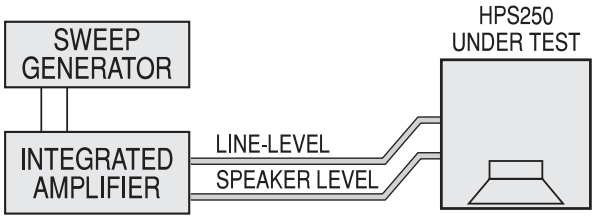
EQUIPMENT

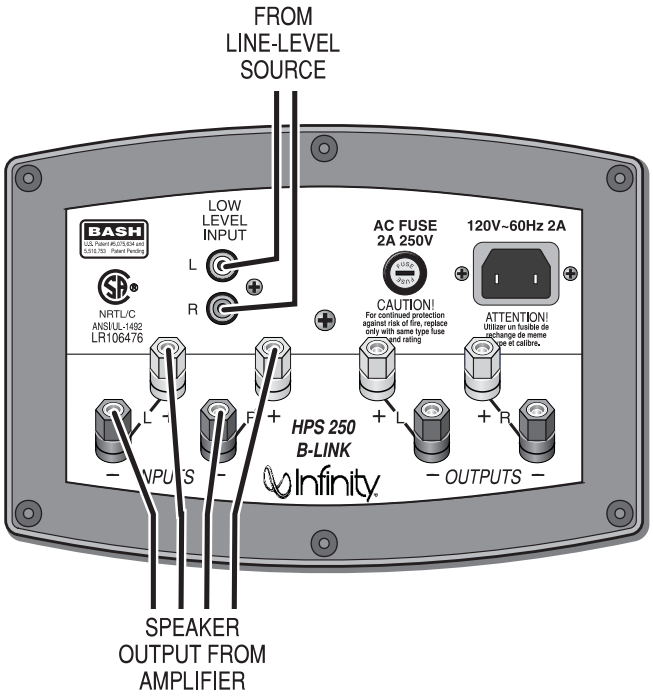
Function generator/signal generator/sweep generator

Integrated Amplifier

Multimeter

Cables - line level (RCA) and speaker cables





General Function

UUT = Unit Under Test

1. Connect both right and left line level inputs (RCA) to signal generator and UUT. Use Y-cable if necessary from mono source. GAIN control should be full counterclockwise.
2. Turn on generator, adjust to **100mV, 50 Hz.**
3. Plug in power cord to UUT; push the main AC power button ON. Green LED should be lit.
4. Turn GAIN control full clockwise; immediate bass response should be heard and felt from port tube opening.
5. Turn off generator, turn GAIN control fully counterclockwise, disconnect RCA cables.
6. Connect one pair of speaker cables to either pair (R) or (L) input terminal on UUT. Cables should be connected to an integrated amplifier fed by the signal generator.
7. Turn on generator and adjust so that speaker level output is **2.0V, 50 Hz**.
8. Turn GAIN control full clockwise; immediate bass response should be heard and felt from the port tube opening.

Sweep Function

1. Follow steps 1-4 above, using a sweep generator as a signal source.
2. Sweep generator from **20Hz** to **300Hz**. Listen to the cabinet and drivers for any rattles, clicks, buzzes or any other noises. If any unusual noises are heard, remove driver and test.

Driver Function

1. Remove driver from cabinet following instructions on page 5.
2. Check DC resistance of driver; it should be **21 ohms +/-10%.**
3. Connect a pair of speaker cables to driver terminals. Cables should be connected to an integrated amplifier fed by a signal generator. Turn on generator and adjust so that speaker level output is **30.0V.**
4. Sweep generator from 20Hz to 1kHz. Listen to driver for any rubbing, buzzing, or other unusual noises.

HPS-250 ELECTRICAL PART LISTS

POWER SUPPLY BOARD.

Ref No.	Part No.	Description	Qty.
Capacitors			
C2, 9, 11	CC0021	CAP, C 470 PF 600V 10%	3
C3, 73	CC0020	CAP, CA 470 PF 100V 5%	2
C4, 16	CE0010	CAP, E 22UF 50V 5X11 2.5	2
C6	CC0065	CAP, CA 2200PF 50V 5%	1
C7	CE0121	CAP, E 470UF 200V 20% 30X25	1
C12	CF0138	CAP, 2.2UF 250V 10% 27MMLS	1
C13, 65	CC0059	CAP, CA .1UF 100V 20%	2
C14	CC0032	CAP, C 2200PF 600V 10%	1
C17, 24, 29	CC0079	CAP, C .1UF 50V 20% .1LS	3
C19	CC0064	CAP, CA .022UF 50V 10%	1
C20	CC0065	CAP, CA 2200PF 50V 5%	1
C21	CF0008	CAP, F 2200PF 100DC 63AC 2% 5	1
C22, 23	CC0095	CAP, C 470PF 100V 5%	2
C26	CC0065	CAP, CA 2200PF 50V 5%	1
C28	CC0089	CAP, CA .01UF 100V 10%	1
C35	CC0059	CAP, CA .1UF 100V 20%	1
C36	CC0040	CAP, CA 4700PF 100V 10%	1
C55, 56, 80 81	CC0082	CAP, CA .1UF 50V 20%	4
C74	CC0072	CAP, CA 100PF 100V 10%	1
Diodes			
D2, 5, 6, 7 12, 25	DS0001	RECT, 100mA 75V SIGNAL 1N4148	6
D9	DR0083	RECT, 4A 600V ULTRA FA MUR460	1
D23	DZ0018	2.5-37V PROGRAM. REF. TL431CLP	1
Z1, 5	DZ0002	500mW 12V 5% 1N5242B	2
Z6	DZ0004	ZENER, 500mW 18V 5% 1N5248B	1
Transistors			
Q1, 8, 23	QB0017	TRANS, NPN 150V 0.6A 2N5551	3
Q3	QB0033	TRANS, NPN 250V 1A TO220 TIP47	1
Q4, 13, 14	QB0002	TRANS, NPN 40V .6A 2N4401 TO92	3
Q7, 22, 26	QB0018	TRANS, PNP 150V 0.6A 2N5401	3
Q9	QM0015	MOSFET, .18R 200V IRF640	1
Q19	QB0019	TRANS, NPN 40V 1A TO220 TIP29B	1
Q21	QB0013	TRANS, PNP 60V 1A TO220 TIP30B	1
Resistors			
R2	RM0180	RES, MF 4.99K 1/4W 1%	1
R3	RC0037	RES, CF 2.0K 1/4W 5%	1
R4	RM0027	RES, MF 33.2K 1/4W 1%	1
R5, 6, 10 11, 28, 70	RM0011	RES, MF 100K 1/4W 1%	6
R7	RM0120	RES, MF 30.1K 1/4W 1%	1
R8	RC0127	RES, CF 30K 1/4W 5%	1
R9, 13,	RM0079	RES, MF 750Ω 1/4W 1%	2
R12	RC0116	RES, CF 330K 1/4W 5%	1
R14, 15, 35, 46, 88	RM0114	RES, MF 20.0K 1/4W 1%	5
R16	RM0034	RES, MF 4.32K 1/4W 1%	1
R17	RC0006	RES, CF 10K 1/4W 5%	1
R18	RM0022	RES, MF 47.0Ω 1/4W 2%	1
R19	RX0019	RES, MO 100Ω 2W 5%	1
R21	RM0336	RES, MF 47Ω 1/4W 1% FLAME PROOF	1
R22, 26	RM0147	RES, MF 16.2K 1/4W 1%	2
R24, 51	BC0038	CORE, TOROID 77930A7	2
R25	RC0083	RES, CF 100K 1/4W 5%	1
R27, 37	RM0180	RES, MF 4.99K 1/4W 1%	2
R30, 50, 68, Z4	RM0001	RES, MF 1K 1/4W 1%	4
R31	RM0320	RES, MF 1.24K 1/4W 1%	1
R32	RM0260	RES, MF 1.0MΩ 1/4W 1%	1
R38	RC0127	RES, CF 30K 1/4W 5%	1
R39	RM0336	RES, MF 47Ω 1/4W 1%	1
R40	RW0022	RES. WW 0.1Ω 2W 5%	1
R41	RC0260	RES, CF 2.4K 1/4W 5%	1
R43	RC0049	RES, CF 3.3K 1/4W 5%	1
R45	RM0035	RES, MF 4.75K 1/4W 1%	1
R47, 72	RM0120	RES, MF 30.1K 1/4W 1%	2
R49	RM0065	RES, MF 200Ω 1/4W 1%	1
R54	RM0012	RES, MF 100Ω 1/4W 1%	1
R71	RM0002	RES, MF 10.0K 1/4W 1%	1
R74	RM0043	RES, MF 6.81K 1/4W 1%	1
R77	RC0082	RES, CF 100K 1/2W 5%	1
R89, 90	RM0336	RES, MF 47Ω 1/4W 1% FLAME PROOF	2
Integrated Circuits			
U3	UA0003	OPAMP, QUAD 14PIN DIL LM324N	1
U5	UP0004	8 PIN UC3842N PWM CONTROLLER	1
Miscellaneous			
B1	MM0025	MISC, PC MT SCREW TERM 6-32	1
B2	MM0025	MISC, PC MT SCREW TERM 6-32	1
CD-	MT0023	TERM, FASTON MALE PCMT 187X032	1
CD+	MT0003	TERM, .25 PCB MT	1
DC-	MT0031	TERM, FASTON .205 MALE PC MT	1
DC+	MT0003	TERM, KWIKDISC .25 PCB MT	1
J3	JH0074	CNCTR, HEADER 8 PIN LOCKING.1	1
L3	BF0008	BEAD, FERRITE	1
L4	540115	IND, PIONEER TZ-SW05	1
L5	BF0007	BEAD, FERRITE	1

LINEAR BOARD.

Ref No.	Part No.	Description	Qty.
Capacitors			
C2, 4	CC0087	CAP, CA .01UF 100V 20%	2
C5, 7, 10 11	CF0045	CAP, F .1UF 63DC 5% 5MMLS	4
C6, 50, 64 67, 101	CE0098	CAP, E 22UF 50V 5MMLS 85DEG	5
C8, 9, 12 101	CE0106	CAP, E 22UF 35V BIPOLAR 6X11	4
C29	CC0082	CAP, CA .1UF 50V 20%	1
C52, 54, 57 58	CC0059	CAP, CA .1UF 100V 20%	4
C61, 62, 110, 120, 121	CC0082	CAP, CA .1UF 50V 20%	5
C100	CF0099	CAP, F .68UF 63V 5%	1
C102	CC0065	CAP, CA 2200PF 50V 5%	1
C103, 104 105, 106	CF0045	CAP, F .1UF 63DC 5% 5MMLS	4
C107, 108	CF0119	CAP, F .047UF 100V 5% .2LS	2
C109	CC0098	CAP, CA .047U 50V 10%	1
C111	CE0018	CAP, E 100UF 25V 20% 5MMLS	1
C112	CE0003	CAP, E 2.2UF 50V 20% 105C	1
Diodes			
D1-D18, 100-109	DS0001	RECT, 100mA 75V SIGNAL 1N4148	28
Z1, 2	DZ0021	500MW 15V 5% 1N5245B	2
Resistors			
R2	RM0001	RES, MF 1.0K 1/4W 1%	1
R3, 6, 18, 21	RM0043	RES, MF 6.81K 1/4W 1%	4
R4, 5, 19, 20	RM0031	RES, MF 3.32K 1/4W 1%	4
R7	RM0093	RES, MF 4.53K 1/4W 1%	1
R8, 9, 23, 24	RM0071	RES, MF 332Ω 1/4W 1%	4
R10, 11, 25 26	RM0024	RES, MF 2.21K 1/4W 1%	4
R12, 27	RM0120	RES, MF 30.1K 1/4W 1%	2
R14, 29	RM0129	RES, MF 53.6K 1/4W 1%	2
R15, 30	RM0029	RES, MF 3.01K 1/4W 1%	2
R16	RC0083	RES, CF 100K 1/4W 5%	1
R19, 20	RM0031	RES, MF 3.32K 1/4W 1%	2
R22	RM0039	RES, MF 5.11K 1/4W 1%	1
R31, 84	RM0103	RES, MF 10.5K 1/4W 1%	2
R32	RC0273	RES, ZERO Ω JUMPER 1/4W	1
R33, 85	RM0073	RES, MF 392Ω 1/4W 1%	2
R34	RM0001	RES, MF 1.0K 1/4W 1%	1
R35, 36	RM0113	RES, MF 20.0K 1/4W 1%	2

Ref No.	Part No.	Description	Qty
R37	RM0304	RES, MF 7.87K 1/4W 1%	1
R38	RM0197	RES, CF 3.6K 1/2W 5%	1
R39, 60	RC0006	RES, CF 10K 1/4W 5%	2
R58, 61, 62, 63	RM0093	RES, MF 4.53K 1/4W 1%	4
R100	RM0085	RES, MF 2K 1/4W 1%	1
R101	RM0255	RES, MF 7.15K 1/4W 1%	1
R102	RM0072	RES, MF 365Ω 1/4W 1%	1
R105	RM0105	RES, MF 12.1K 1/4W 1%	1
R106	RM0306	RES, MF 14.7K 1/4W 1%	1
R107	RM0121	RES, MF 31.6K 1/4W 1%	1
R108	RM0001	RES, MF 1K 1/4W 1%	1
R109	RM0307	RES, MF 1.15K 1/4W 1%	1
R110	RM0191	RES, MF 20.5K 1/4W 1%	1
R111	RM0267	RES, MF 46.4K 1/4W 1%	1
R112	RM0302	RES, MF 2.15K 1/4W 1%	1
R113	RM0303	RES, MF 3.09K 1/4W 1%	1
R114	RM0267	RES, MF 46.4K 1/4W 1%	1
R115, 117	RM0114	RES, MF 22.1K 1/4W 1%	2
R118	RM0002	RES, MF 10.0K 1/4W 1%	1
R119	RM0013	RES, MF 11.0K 1/4W 1%	1
R120	RM0075	RES, MF 475Ω 1/4W 1%	1
R121, 122 123, 124, 126	RC0006	RES, CF 10K 1/4W 5%	5
R125	RC0127	RES, CF 30K 1/4W 5%	1
R127, 131	RC0037	RES, CF 2.0K 1/4W 5%	2
R128	RC0083	RES, CF 100K 1/4W 5%	1
R129	RC0014	RES, CF 15K 1/4W 5%	1
R130	RC0004	RES, CF 1.0MEGΩ 1/4W 5%	1
R140	RC0001	RES, CF 1.0K 1/2W 5%	1
Integrated Circuits			
U1, 100	UA0009	OPAMP, QUAD 14PIN DIL TL084	2
U4	UF0013	OPTOCOUPLER, 6PIN MOC3012	1
U101	UA0003	OPAMP, QUAD 14PIN DIL LM324N	1
Transistors			
Q1, 2, 5, 6	QB0017	TRANS, NPN 150V 0.6A 2N5551	4
Q3, 7	QM0044	MOSFET, 0.8R 200V PCH IRF9630	2
Q4, 8	QM0042	MOSFET, 0.8R 200V NCH IRF620	2
Q9	QM0035	JFET, N-CH J111 TO92	1
Q100	QM0035-S	JFET, J111 SELECTED	1
Q101	QB0002	TRANS, NPN 40V .6A 2N4401 TO92	1
Miscellaneous			
B1, 2, 3, 4	MM0025	MISC, PC MT SCREW TERM 6-32	4

Ref No.	Part No.	Description	Qty.
CD-	MT0023	TERM, FASTON MALE PCMT 187X032	1
CD+	MT0003	TERM, KWIKDISC .25 PCB MT	1
J3	JH0074	CNCTR, HEADER 8PIN LOCKING.1	1
J100	JH0063	CNCTR, HEADER 3PIN	1
R13	RP0056	POT, 5K 8MM HOR, BIAS	1
R28	RP0056	POT, 5K 8MM HOR, BIAS	1
R103	RP0063	POT, A10K SINGLE/BRACKET, GAIN	1
R116	RP0065	POT, B50K DUAL/BRACKET B021 FREQUENCY	1
SHIELD	JH0028	CNCTR, HEADER 3PIN .100CTR	1
SPK-	MT0031	TERM, FASTON .205 MALE PC MT	1
SPK+	MT0003	TERM, KWIKDISC .25 PCB MT	1
SW3	SR0017	SWITCH, 2 POLE 2PDT, PHASE	1
TH1	KS0019	THERMISTOR, PTH9L04BB22TS2F330	1

HIGH LEVEL INPUT BOARD

Ref No.	Part No.	Description	Qty
Capacitors			
C1, 2	CE0106	CAP, E 22UF 35V BIPOLAR 6X11	2
C3, 4	CF0020	CAP, FY 4700PF 250V 20%	2
Resistors			
R1	RW0037	RES, WW 470Ω 5W 5%	1
R2, 5	RC0059	RES, CF 47Ω 1/2W 5%	2
R3, 6	RM0085	RES, MF 2K 1/4W 1%	2
R4	RW0037	RES, WW 470Ω 5W 5%	1
Miscellaneous			
BP1, 2, 3, 4	JC0086	CNCTR SINGLE BINDING POST RED	4
BP5, 6, 7,8	JC0087	CNCTR, SINGLE BINDING POST BLK	4
BP	HN0015	NUT, HEX KEP #8-32 ZNP	8
F1	FS0021 FS0016	FUSE, 2A 250V MDL Slo-Blo Fuse **(120V)** FUSE, 1A 250V MDL Slo-Blo Fuse **(230V)**	1 1
FUSE-2	FH0010	FUSE, HOLDER PANEL MT RANGLE	1
IEC-1	JC0076	CNCTR, AC IEC SOCKET .250TAB	1
IEC-2	HS0055	SCREW, #4-40X1/2 PAN PHIL BLK	2
IEC-3	HN0001	NUT, KEP 3/16AF 4-40 ZNP	2
RCA	HS0041	SCREW, #4 SELF TAP PAN PHIL BL	1
MM25	HS0065	SCREW, #6-32X1/4 PAN PHIL BLK	1
SHIELD-2	HS0074	SCREW, #4-40X3/4 PHIL HEAD ZNP	1
SHIELD-3	HN0001	NUT, KEP 3/16AF 4-40 ZNP	1
STNOF-1	MZ0028	STANDOFF, ¼" AL ID.151 #409	1
STNOF-2	MZ0023	STANDOFF, .5" LOCKING	1
WIRE-2	WI0032	WIRE, POWER CORD SPT2/IEC 8FT	1
AC	JC0114A	CNCTR, 3PIN FEM/2XFEM FASTON	1
INPUT	JC0117A	CNCTR, 3PIN FEM/3PIN MALE 11"	1
OUTCUP	930035	CUP, OUTER PLASTIC HPS250	1
INCUP	930036	CUP, INNER PLASTIC HPS250	1
SCREW	HS0072	SCREW, #4 HI-LOW PAN PHIL ZNP	2
CAB-TIE	MC0003	CABLE, TIE 40MM W/METAL RING	2
T1	500086 500092	120v XFMR, POWER AUDIO YT-6821 230v XFMR POWER AUDIO YT-6893	2 2

LOW LEVEL INPUT BOARD

Ref No.	Part No.	Description	Qty
Capacitors			
C10	CE0106	CAP, E 22UF 35V BIPOLAR 6X11	1
C12	CF0020	CAP, FY 4700PF 250V 20%	1
Resistors			
R10, 11	RM0029	RES, MF 3.01K 1/4W 1%	2
Miscellaneous			
RCA1	JC0049	CNCTR, DUAL JACK RCA	1
J34, 36	JH0063	CNCTR, HEADER 3PIN	2
T10	500086	120V XFMR, POWER AUDIO YT-6821 230V XFMR, POWER AUDIO YT-6893	1 1
W5	MM0025	MISC, PC MT SCREW TERM 6-32	1

LINE FILTER BOARD

Ref No.	Part No.	Description	Qty.
Capacitors			
C5	CF0057	CAP, FX .22UF 250V 10%	1
C9	CE0004	CAP, E 2.2UF 450V 20%	1
Diode			
D1	DB0009	RECT, 6A 400V BRIDGE TU604	1
Resistor			
R1	RC0004	RES, CF 1.0MEGΩ 1/4W 5%	1
Miscellaneous			
CORE-3	.BC0018	CORE, TOROID ZF42206TC	1
J1	JH0044	CNCTR, HEADER 3PIN .156CTR	1
L1	540126	**230V ONLY** XFMR, CURRENT CHOKE SQ	1
L2	540124	**230V ONLY** XFMR, CURRENT CHOKE SQ	1
L3	520024	XFMR, CURRENT CHOKE SQ	1
SW3	SR0009	SWITCH, PUSH TV5	1
Z1	KV0001	VARISTOR, 275V 100J .6W	1

LED BOARD

Ref No.	Part No.	Description	Qty.
J1	JC0118	CNCTR, 3PIN LED HARNESS 4”	1
LED1	DL0021	LED, 3MM GREEN	1
LED2	DL0021	LED, 3MM GREEN	1

MISC. SECTION

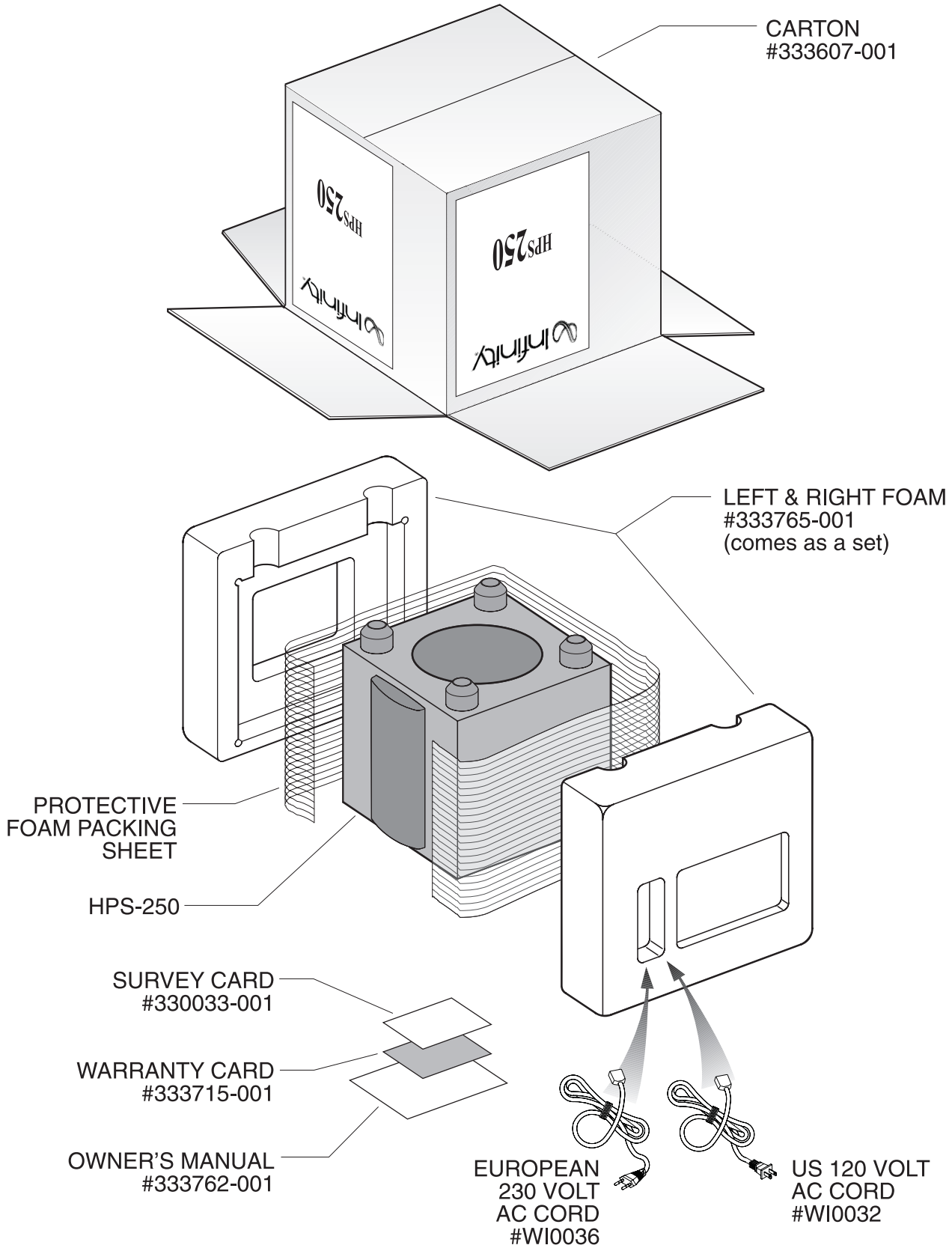
Ref No.	Part No.	Description	Qty.
FETS-1	810065	MET, HTSNK .98X5.7 PWR SUPPLY	1
FETS-2	810066	MET, HTSNK CLIP HPS SERIES	4
FETS-3	MS0005	SILPAD, .009” .3C/W TO3P	3
FETS-4	MS0014	MISC, CERAMIC PLATE T0-220	1
MM25	HS0004	SCREW, #6-32X1/4 PAN PHIL ZNP	2
AC	JC0114B	CNCTR, 3PIN MALE/3PIN FEM LOCK	1
CAB-TIE	HS0072	SCREW, #4 HI-LOW PAN PHIL ZNP	4
CAB-TIE	MC0003	CABLE, TIE 40MM W/METAL RING	4
CD+/-	JC0112	CNCTR, CLASSD POWER CABLE	1
CLASSD	JC0111	CNCTR, 8PIN RIBBON CABLE 3”	1
DC+/-	JC0113	CNCTR, DC POWER CABLE 5”	1
F/L	JC0116	CNCTR, SPEAKER CABLE 22”	1
F/L	JC0117B	CNCTR, 3PIN FEM/3PIN FEM 21”	1
HOUSE	930037	MISC, HPS AMP HOUSING PLASTIC	1
JC0116	TS0017	FIBREGLASS, HT210 #2AWG 3”	1
KNOB-1	RP0076	POT, KNOB GAIN/FREQUENCY	1
KNOB-2	RP0077	SWITCH KNOB PHASE	1
KNOB-3	RP0078	BUTTON KNOB MAIN POWER	1
LED	DL0023	LED, REFLECTOR	1
SCREWS	HS0072	SCREW, #4 HI-LOW PAN PHIL ZNP	2
SCREWS	HS0073	SCREW, #6 HI-LOW PAN PHIL ZNP	8
FET-1	810064	MET, HTSNK .98X6.8 HPS250 FEA	2
FET-2	810066	MET, CLIP HPS SERIES	4
MM25	HS0004	SCREW, #6-32X1/4 PAN PHIL	4

POWER SUPPLY
PARTS FOUND ONLY ON THE 230V MODEL

Ref No.	Part No.	Description	Qty.
Capacitors			
C79	CE0098	22uf 50V	1
C6	CC0038	4700pf	1
C7	CE0129	150UF 400V	1
C11	CC0016	220pf	1
C14	CC0018	330pf	1
C19	CC0065	2200pf	1
C54	CE0132	4.7UF	1
Diodes			
D4	DR0004	RECT. MUR140 ULTRA FAST	1
Z2, 4	DZ0022	ZENER 1N5271B 100V	2
Z3	DZ0014	ZENER 1N5244B 14V	1
Z6	DZ0004	ZENER 1N5242B 12V	1
Transistors			
Q3	QB0047	TIP50	1
Q5	QB0027	PNP MPSA92	1
Q7	QB0027	MPSA92	1
Q8	QB0015	MPSA42	1
Q25	QB0048	PNP MPS6717	1
Resistors			
R4	RM0190	MF 35.7Ω 1/4W	1
R16	RM0089	MF 2.43Ω 1/4W	1
R21	RM0336	MF 10Ω 1/4W 1% FLAMEPROOF	1
R31	RM0283	MF 442Ω 1/4W 5%	1
R33	RC0083	CF 100Ω 1/4W	1
R34	RM0130	CF 68Ω 1/4W	1
R38	RM0127	CF 49.9K 1/4W	1
R40	RX0025	WW 1Ω 1W 5%	1
R54	RM0336	MF 47Ω 1/4W 1%	1
R77	RC0104	CF 470Ω 1/4W	1
R92	RC0231	CF 300Ω 1/2W	1

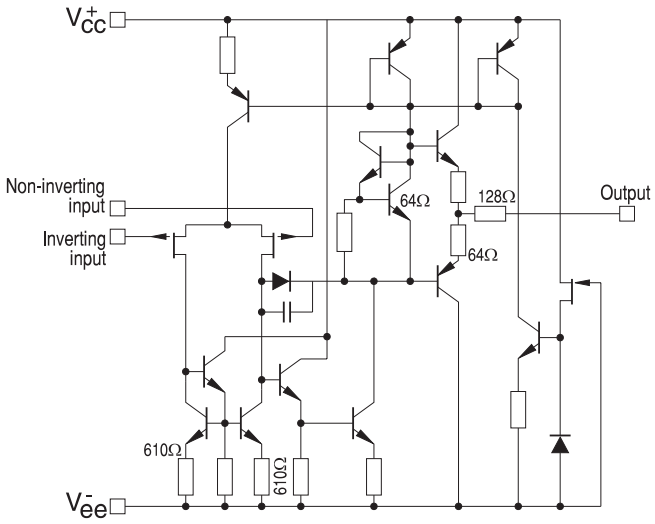
HPS-250 PACKAGING EXPLODED VIEW

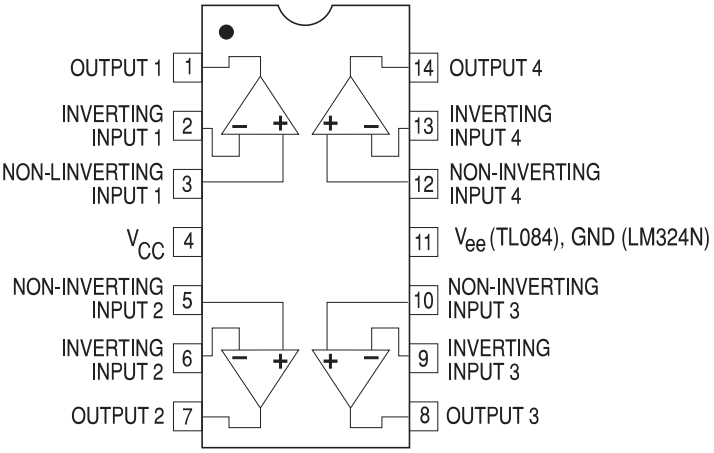
NOTE: For packing and unpacking turn the carton up-side-down.



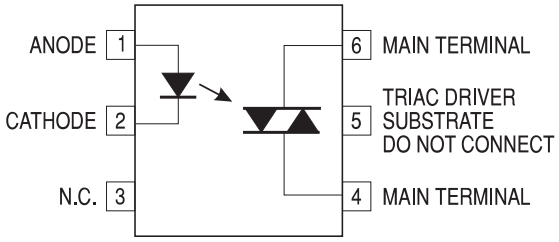
INTEGRATED CIRCUIT DIAGRAMS

U1, U100 - TL084 Quad Op Amp
U3, U101 - LM324N Quad Op Amp

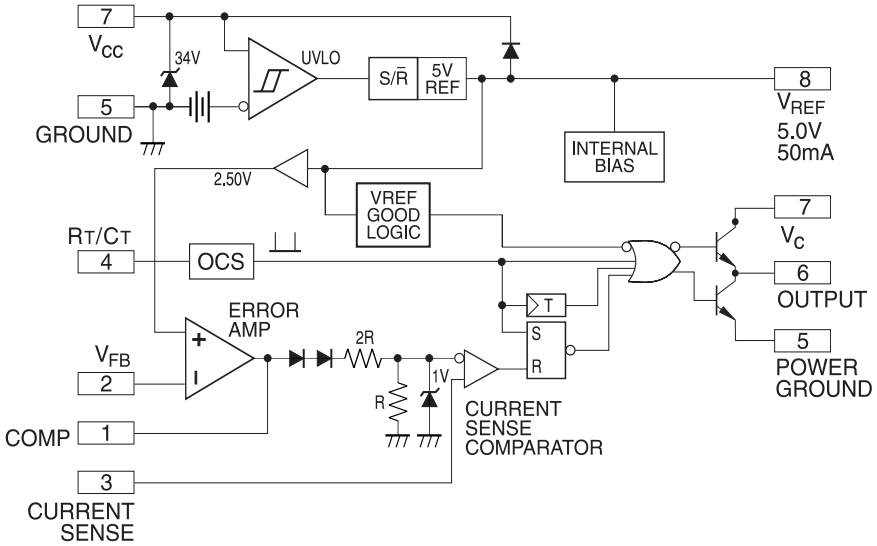


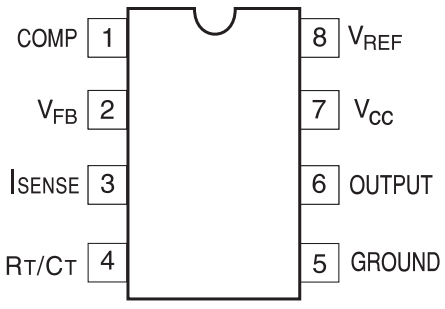


U4 - MOC3012 OPTOCOUPLER

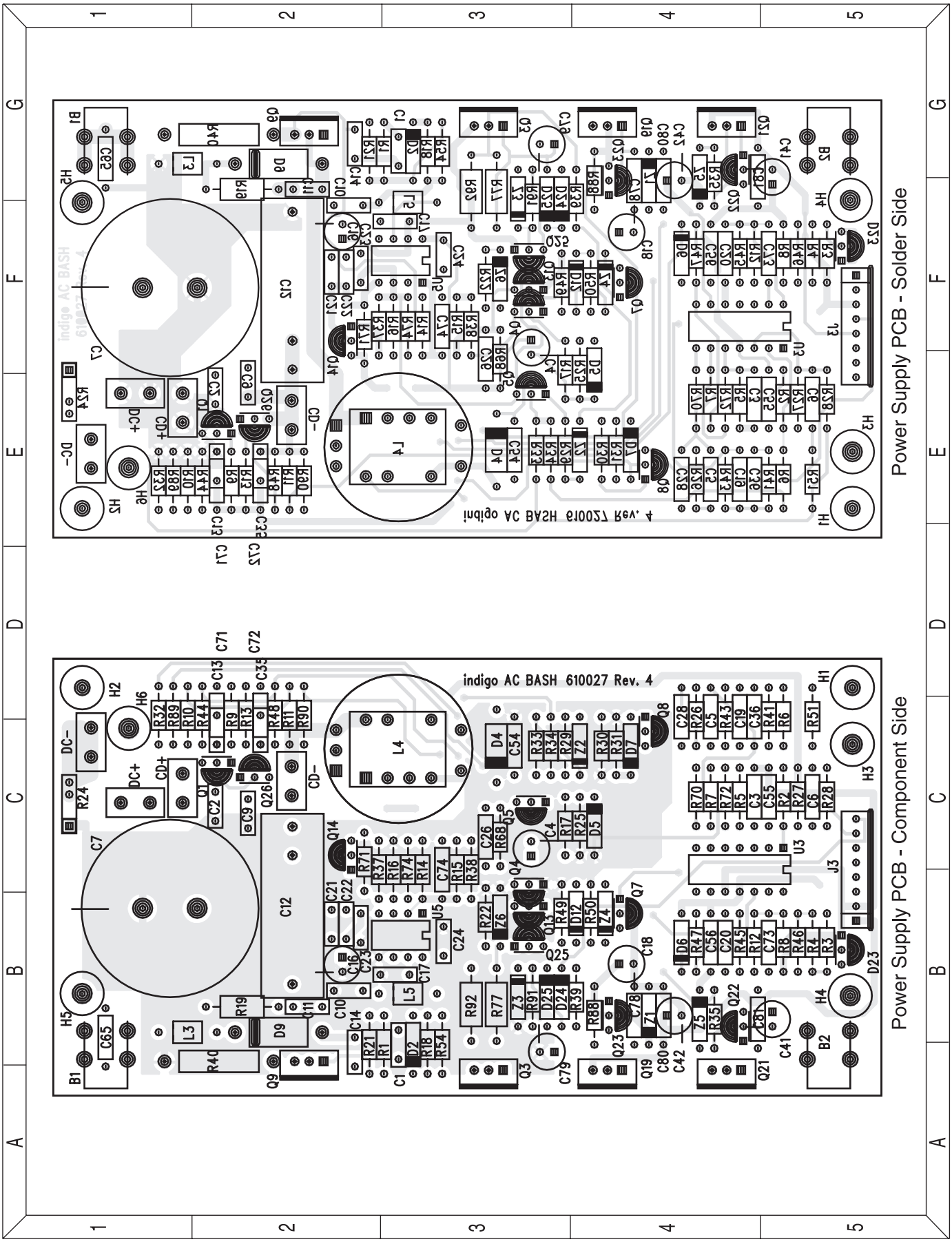


U5 - UC3842N PWM CONTROLLER

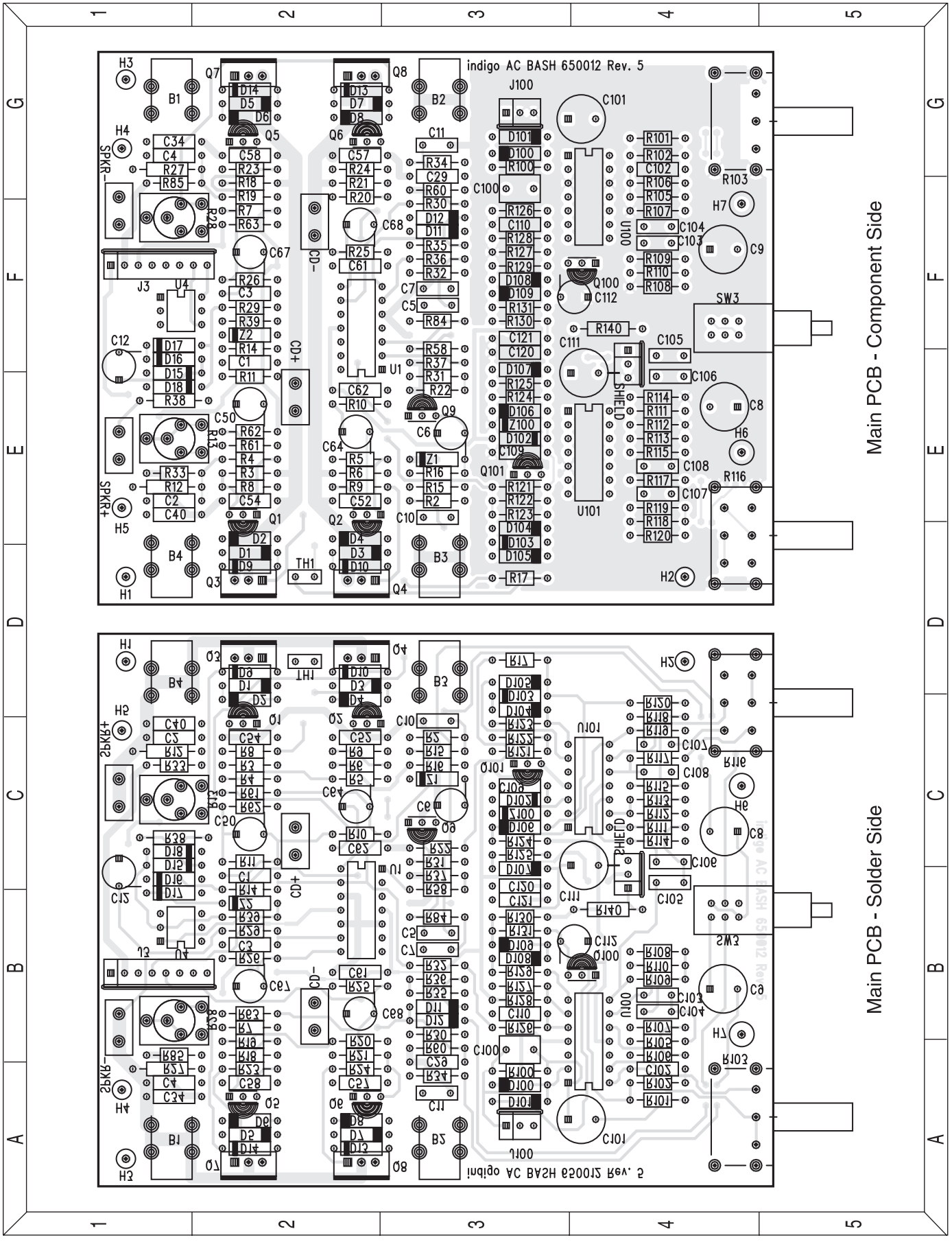




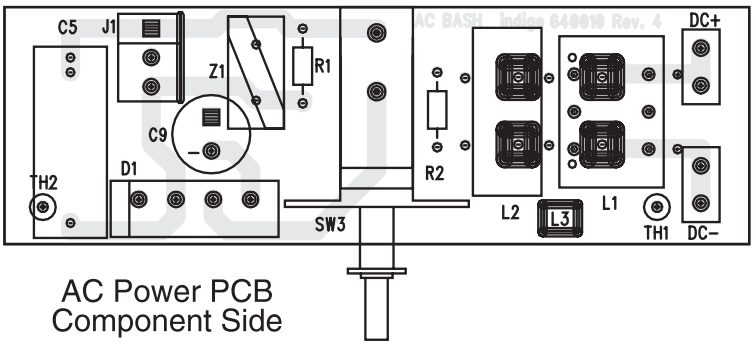
PRINTED CIRCUIT BOARD - POWER SUPPLY



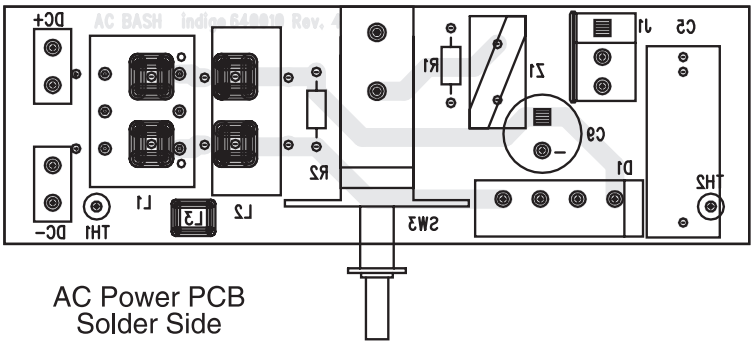
PRINTED CIRCUIT BOARD - MAIN BOARD



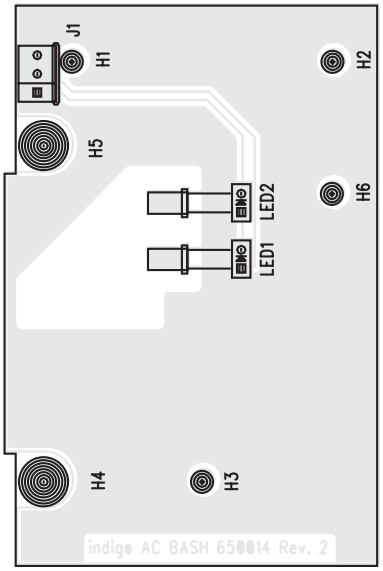
PCBs - AC POWER, SHIELD/LED, H/I SHIELD



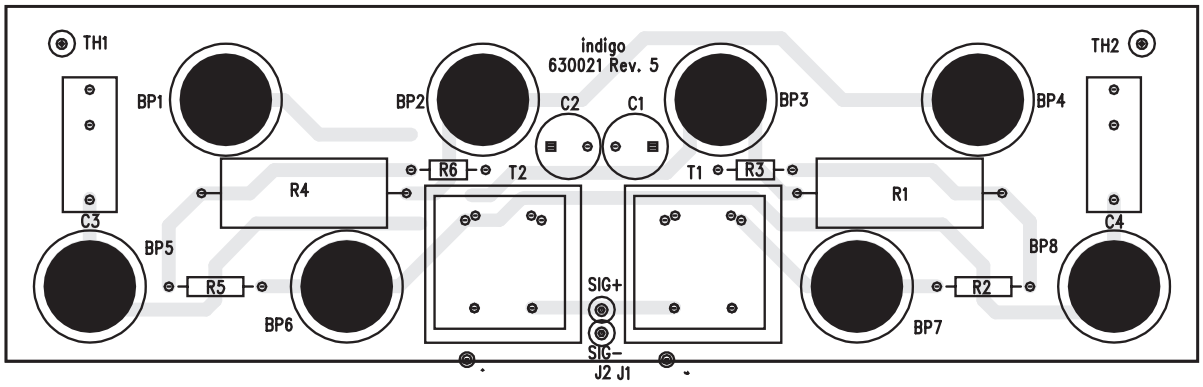
AC Power PCB
Component Side



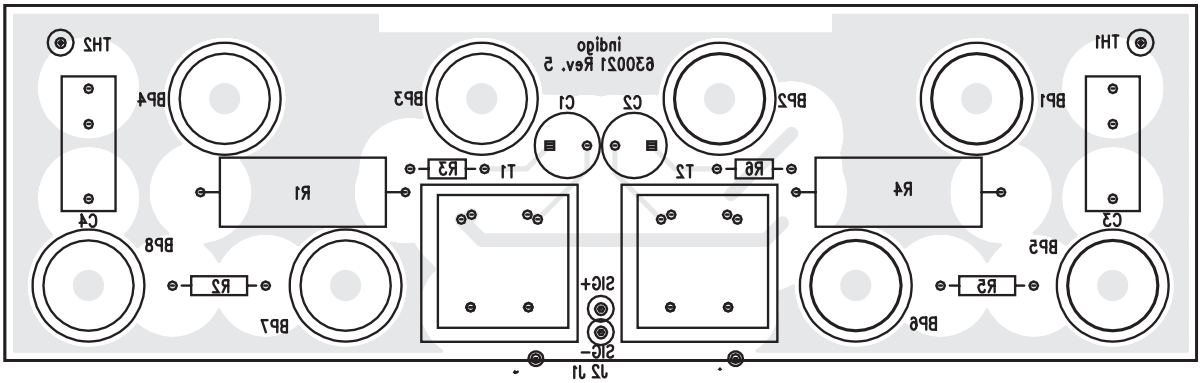
AC Power PCB
Solder Side



Shield/LED PCB
Component Side

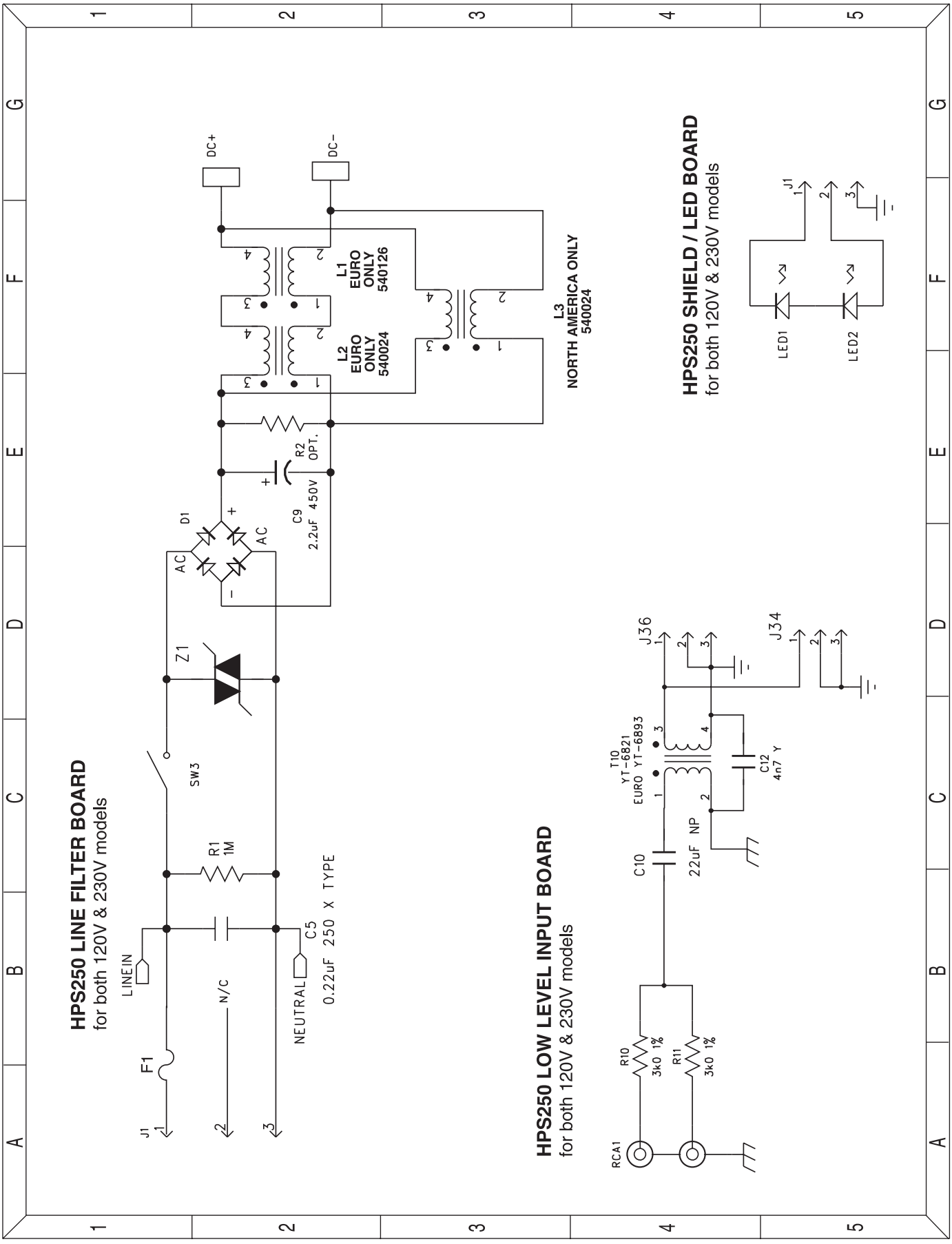


HL Shield PCB - Solder Side

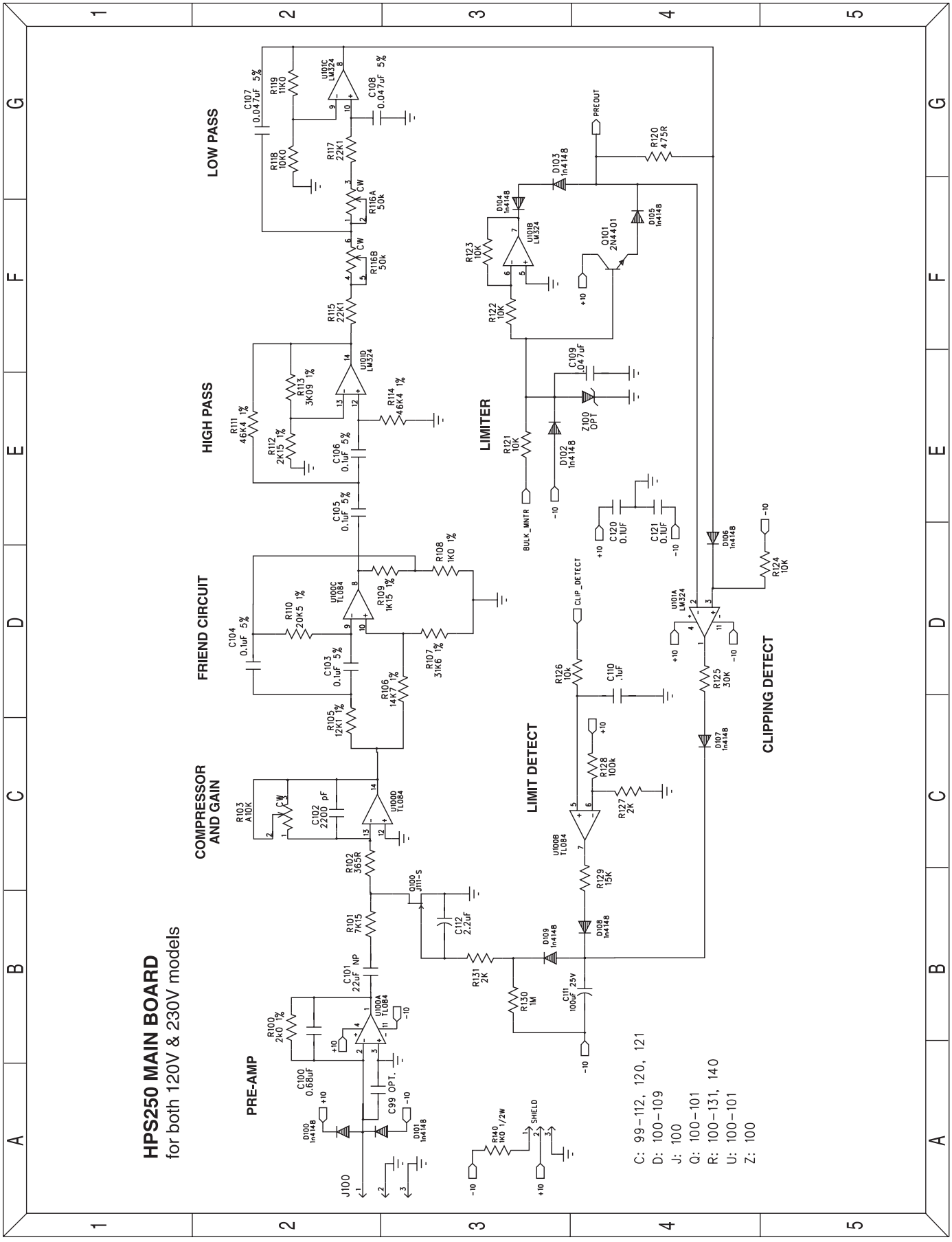


HL Shield PCB - Component Side

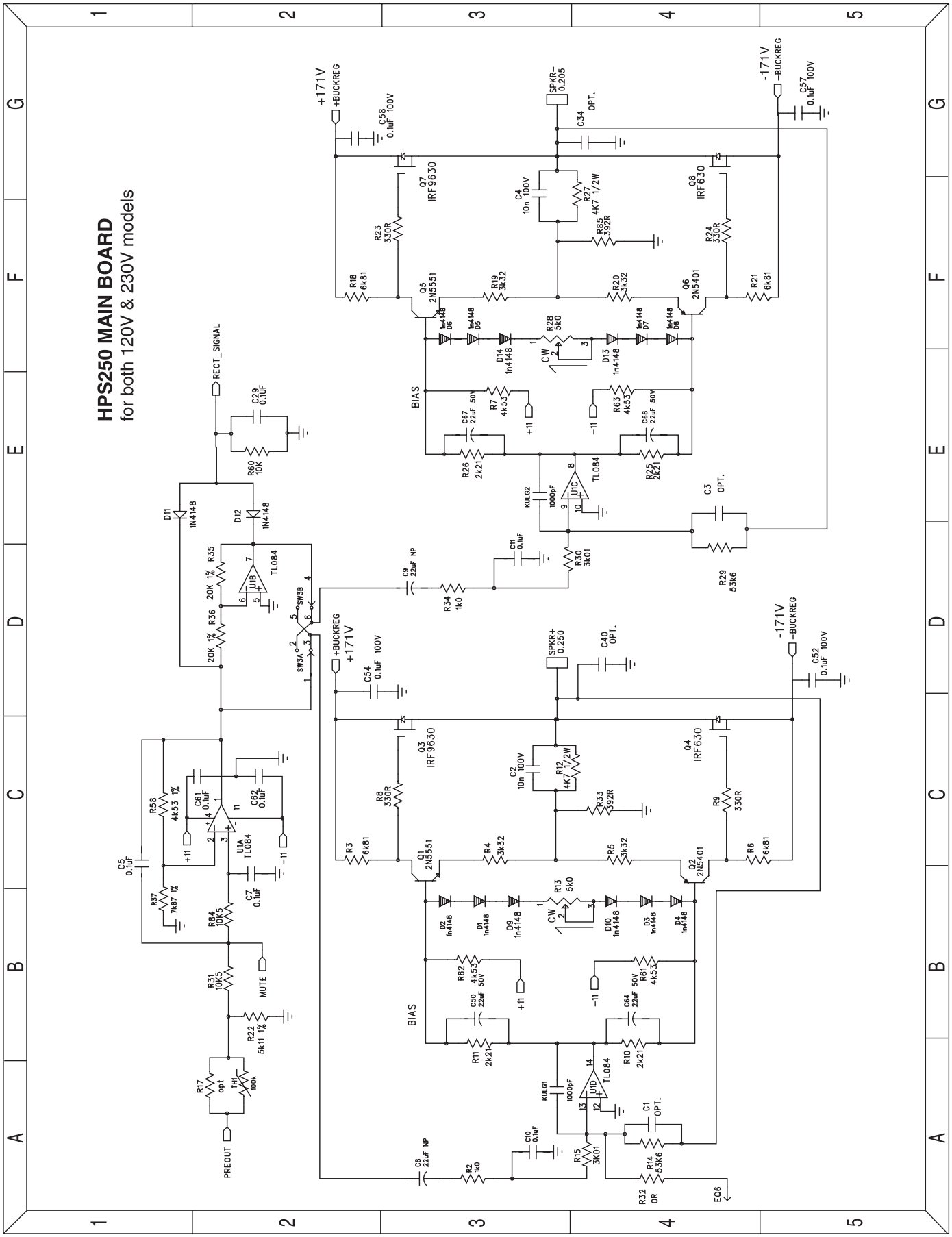
LINE FILTER, LOW LEVEL INPUT, SHIELD/LED BOARD SCHEMATICS



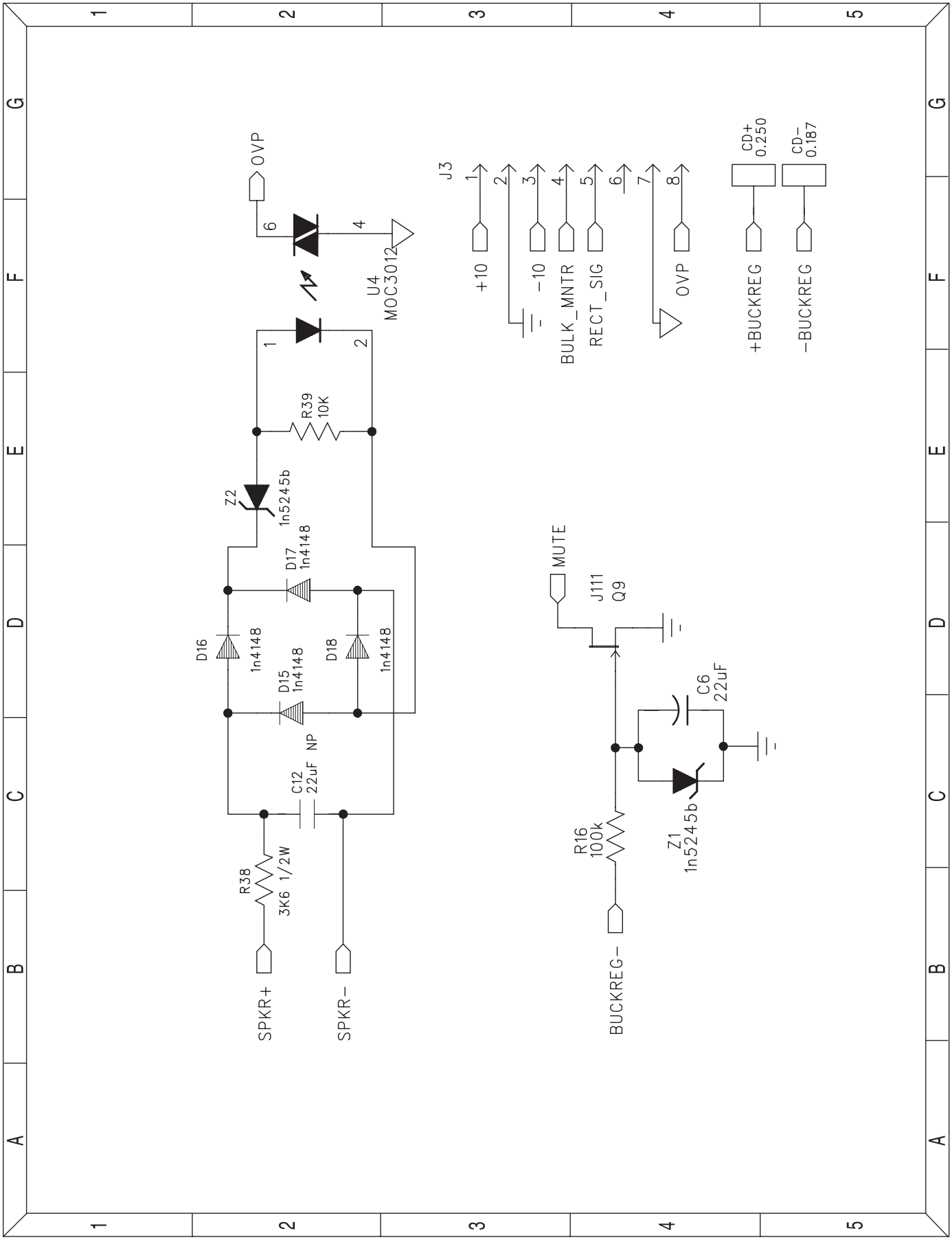
MAIN BOARD SCHEMATIC 1 of 3



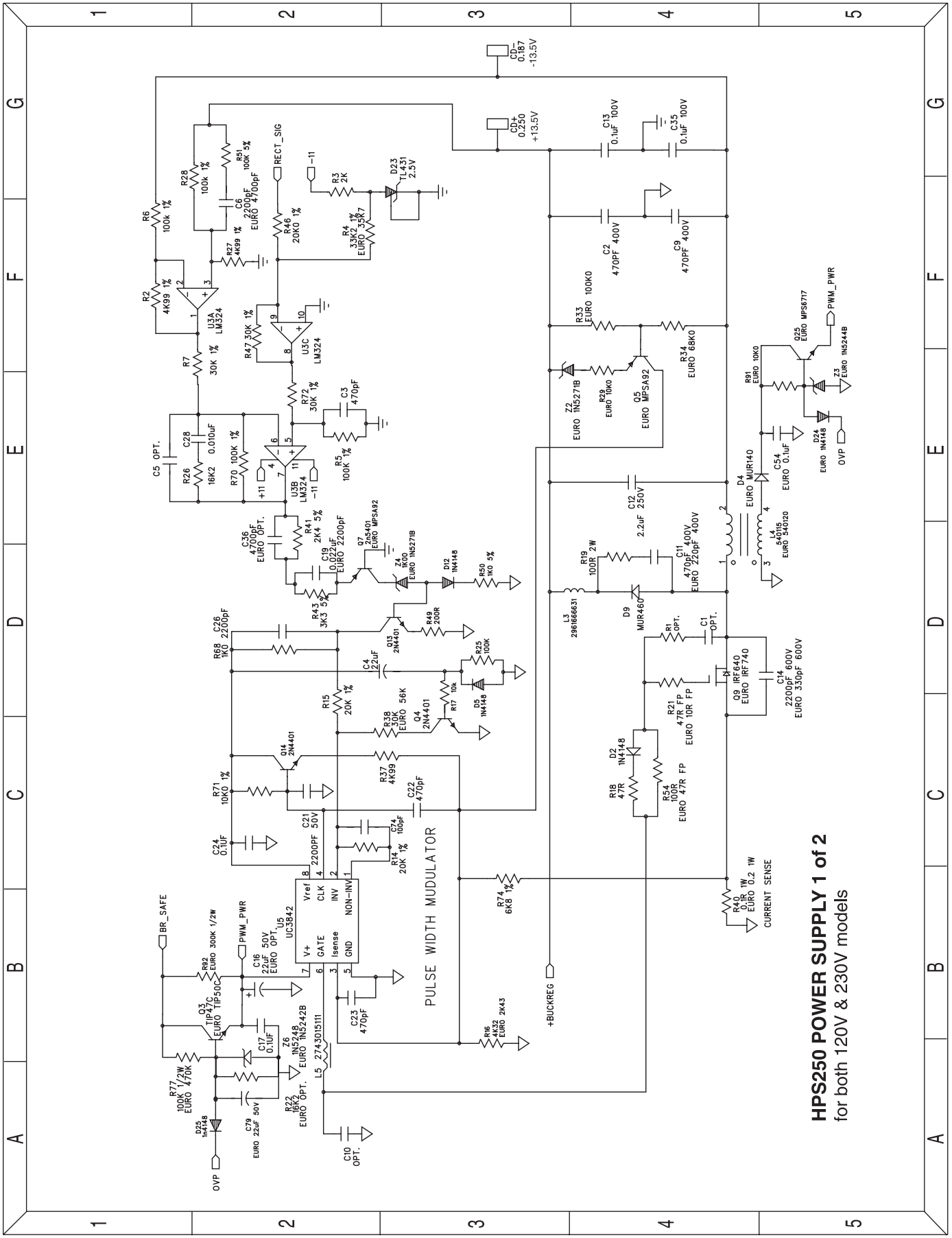
MAIN BOARD SCHEMATIC 2 of 3



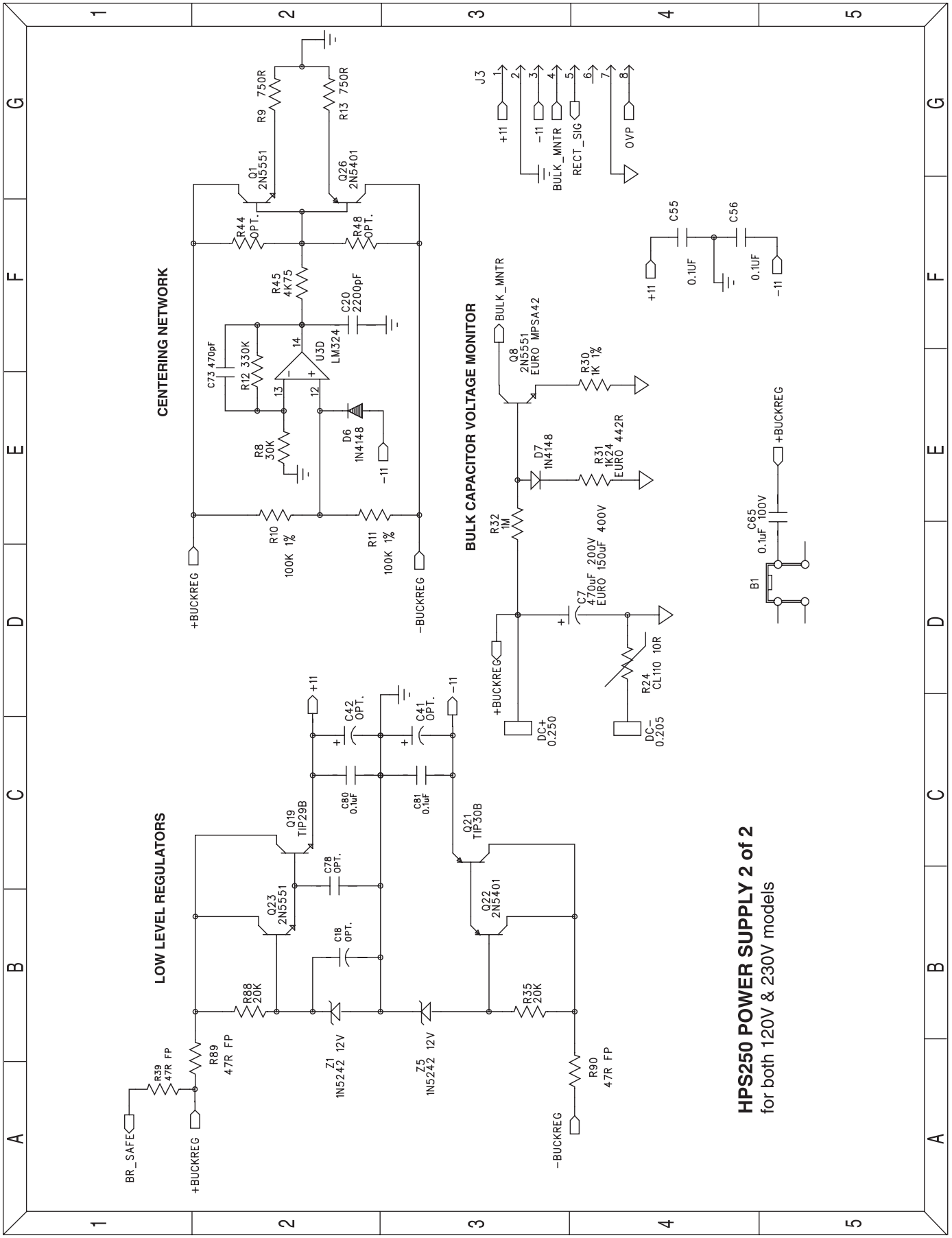
MAIN BOARD SCHEMATIC 3 of 3



POWER SUPPLY SCHEMATIC 1 of 2



POWER SUPPLY SCHEMATIC 2 of 2


CENTERING NETWORK
LOW LEVEL REGULATORS
BULK CAPACITOR VOLTAGE MONITOR
HPS250 POWER SUPPLY 2 of 2
for both 120V & 230V models

HIGH LEVEL INPUT SCHEMATIC